UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/451,915	12/01/1999	RYUJI NISHIMURA	H-864	9658

24956 7590 03/24/2004

MATTINGLY, STANGER & MALUR, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER	
WU, DOROTHY	

ART UNIT	PAPER NUMBER
2615	7

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/451,915	Applicant(s) NISHIMURA ET AL.	
	Examiner Dorothy Wu	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-11, 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, in view of Nobuoka, U.S. Patent 5,986,698, and further in view of Kato, U.S. Patent 6,148,031.

Regarding claim 1, the admitted prior art teaches cameras that are able to pick up both still and motion images (page 1, lines 14-15). The admitted prior art teaches an image pickup device (page 1, line 5) comprising: a photoelectric sensor (CCD), wherein the pixel signals accumulated in each pixels are outputted with interlace by subsampling the pixel signals for every one line when capturing a still image, which reads on a first signal read mode (page 2, lines 2-7). It is an inherent feature of a CCD to have pixels arranged in the vertical and horizontal directions for converting the light focused on the pixels to electric pixel signals. The admitted prior art teaches that for a still image, pixel signals of odd number lines are read on the first field,

pixel signals of even number lines are read on the second field, and the still image is generated by sequentially converting the signals of the first and second fields, which reads on an interlace/non-interlace converter for converting the signals with the interlace, which output from the photoelectric sensor in the first signal read mode, to a non-interlaced signal (page 2, lines 5-9).

The admitted prior art does not teach that a sum of the pixel signals in the two pixels adjoining each other in the vertical direction are sequentially outputted without interlace in a second signal read mode, a signal processor for converting signals in a specified format, or a rate converter. Nobuoka teaches that a sum of the pixel signals in the two pixels adjoining each other in the vertical direction are sequentially outputted from a non-interlace CCD in a second signal read mode (moving image mode) (col. 4, lines 53-67). Nobuoka also teaches that predetermined processes are applied to the outputted signals to generate standard television signals, i.e. NTSC or PAL (col. 4, lines 62-66). The signal processor for converting signals in a specified format and the rate converter that converts the non-interlace images to interlace images are inherently taught. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the summation of vertically adjacent pixels in the moving image mode taught by Nobuoka into the camera taught by the admitted prior art to make a camera that outputs still images with interlace and converts them to non-interlace, and sums adjacent pixels in motion images and outputs them without interlace while subsequently converting them to interlace. One of ordinary skill would have been motivated to make such a modification to generate retain resolution for high-quality still images and improve temporal scalability and sensitivity for moving images.

The admitted prior art in view of Nobuoka do not teach an encoder for compressing the signals from the signal processor, a memory device, or a decoder. Kato teaches an encoder (image compression/decompression circuit **18**) for generating a first or second image data by compressing the first or second signals output from the signal processor (digital signal processor circuit **14**) (col. 3, lines 42-53); a memory device (first memory **20**) for memorizing the first or second image data output from the encoder (image compression/decompression circuit **18**) (col. 3, lines 46-47, 50-53); and a decoder (image compression/decompression circuit **18**) for reproducing the first signal by decoding the first image data memorized in the memory device (first memory **20**) (col. 5, lines 23-29).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the interlace/non-interlace reading methods of the admitted prior art in view of Nobuoka with the compression/decompression units of Kato to make an image sensing apparatus that reads still and motion images using the same camera, and processes, encodes, stores, and decodes the data. One of ordinary skill would have been motivated to make such a modification to enable a camera to process both still and motion images so as to minimize the amount of memory required to store the images.

Regarding claim 11, the admitted prior art teaches cameras that are able to pick up both still and motion images (page 1, lines 14-15). The admitted prior art teaches an image pickup device (page 1, line 5) comprising: a photoelectric sensor (CCD), wherein the pixel signals accumulated in each pixels are outputted with interlace by subsampling the pixel signals for every one line when capturing a still image, which reads on a first signal read mode (page 2, lines 2-7). It is an inherent feature of a CCD to have pixels arranged in the vertical and horizontal

directions for converting the light focused on the pixels to electric pixel signals. The admitted prior art teaches that for a still image, pixel signals of odd number lines are read on the first field, pixel signals of even number lines are read on the second field, and the still image is generated by sequentially converting the signals of the first and second fields, which reads on an interlace/non-interlace converter for converting the signals with the interlace, which output from the photoelectric sensor in the first signal read mode, to a non-interlaced signal (page 2, lines 5-9).

The admitted prior art does not teach that a sum of the pixel signals in the two pixels adjoining each other in the vertical direction are sequentially outputted without interlace in a second signal read mode, a signal processor for converting signals in a specified format, or a rate converter. Nobuoka teaches that a sum of the pixel signals in the two pixels adjoining each other in the vertical direction are sequentially outputted from a non-interlace CCD in a second signal read mode (moving image mode) (col. 4, lines 53-67). Nobuoka also teaches that predetermined processes are applied to the outputted signals to generate standard television signals, i.e. NTSC or PAL (col. 4, lines 62-66). The signal processor for converting signals in a specified format and the rate converter that converts the non-interlace images to interlace images are inherently taught. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the summation of vertically adjacent pixels in the moving image mode taught by Nobuoka into the camera taught by the admitted prior art to make a camera that outputs still images with interlace and converts them to non-interlace, and sums adjacent pixels in motion images and outputs them without interlace while subsequently converting them to interlace. One of ordinary skill would have been motivated to make such a

modification to generate retain resolution for high-quality still images and improve temporal scalability and sensitivity for moving images.

The admitted prior art in view of Nobuoka do not teach an encoder for compressing the signals from the signal processor, a memory device, or a decoder. Kato teaches an encoder (image compression/decompression circuit **18**) for generating a first or second image data by compressing data volume in frames of the first or second video signals output from the signal processor by a first compressing method (col. 3, lines 42-47), and generating a third image data by compressing data volume in frames of the second video signals by a second compressing method (col. 3, lines 54-58); a memory device (first memory **20** and second memory **22**) for memorizing the first or second image data and the third image data that are output from the encoder (col. 3, lines 46-47, 61-63); and a decoder (image compression/decompression circuit **18**) for reproducing the first or second video signal by decoding the first or second image data and the third image data that are memorized in the memory device (col. 4, lines 36-37). As data must be decompressed before being displayed, it would have been obvious for the decoder to decode the third image data as well.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the interlace/non-interlace reading methods of the admitted prior art in view of Nobuoka with the compression/decompression units of Kato to make an image sensing apparatus that reads still and motion images using the same camera, and processes, encodes, stores, and decodes the data. One of ordinary skill would have been motivated to make such a modification to enable a camera to process both still and motion images so as to minimize the amount of memory required to store the images.

Regarding claims 3 and 13, the admitted prior art teaches that the first signal generated in the first signal read mode is a still image (page 2, line 2), and the second signal generated in the second signal read mode is a motion image signal (page 1, line 25).

Regarding claims 4 and 14, the admitted prior art teaches that the effective pixel number of said photoelectric sensor in vertical direction approximates multiplication by an integer of the effective number of scanning lines in the television signal standard (page 2, lines 15-17).

Regarding claims 5 and 15, Kato teaches that individual images may be tagged as still images, which reads on the first image data representing one still image, and that the images captured during continuous image taking are a series of still images (col. 3, lines 47-56).

Regarding claims 6 and 16, the admitted prior art teaches that said arrangement of said pixels on said photoelectric sensor has a cycle of a units of two rows in the vertical direction and four lines in the horizontal direction, the pixels of the first color and the pixels of the second color are arranged alternately in the first lines, the pixels of the third color and the pixels of the fourth color are arranged alternately in the second lines, the pixels of the second color and the pixels of the first color are arranged alternately in the third lines, and the pixels of the third color and the pixels of the fourth color are arranged alternately in the fourth lines (page 1, line 20-23; Fig. 3A).

Regarding claims 7 and 17, the admitted prior art teaches that said first color is magenta, said second color is green, said third color is cyan, and said fourth color is yellow (Fig. 3A).

Regarding claims 8 and 18, the admitted prior art teaches the use of green, blue, and red as the colors in the color filter (page 2, lines 17-20; Fig. 3C). It would have been obvious to one

of ordinary skill to substitute the green, blue, and red colors into the filter arrangement of claim 6.

Regarding claims 9 and 19, the admitted prior art teaches that the effective pixel number of said photoelectric sensor in vertical direction approximates multiplication by an integer of the effective number of scanning lines in the television signal standard (page 2, lines 15-17).

Regarding claims 10 and 20, the admitted prior art teaches that the effective pixel number of said photoelectric sensor is 960, which is between 920 and 1020 (page 2, line 16).

3. Claims 2 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art, in view of Nobuoka, U.S. Patent 5,986,698, in view of Kato, U.S. Patent 6,148,031, and further in view of Okayama et al, U.S. Pub. No. 2003/0122941.

Regarding claims 2 and 12, the admitted prior art in view of Nobuoka in view of Kato teach the apparatus according to claim 1 and claim 11. See above. The admitted prior art in view of Nobuoka in view of Kato do not teach that said interlace/non-interlace converter and said rate converter comprises a memory for storing said signals output from the photoelectric sensor, and a memory controller for controlling writing and reading addresses and timings. Okayama et al teaches that interlaced signals are stored in frame memory locations based on whether the signals come from an odd- or even-numbered line [0069]. The signals are read out of memory by successively reading one odd frame followed by one even frame [0070]. The memory controller is inherently taught. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the apparatus taught by the admitted prior art in view of Nobuoka in view of Kato with the practice of storing and reading out interlaced signals

taught by Okayama et al to make an apparatus that stores interlaced signals in a predetermined fashion and reads out the signals in order to convert them to a non-interlaced format. One of ordinary skill would have been motivated to make such a modification to achieve a slower refresh rate while reproducing entire images.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dorothy Wu whose telephone number is 703-305-8412. The examiner can normally be reached on Monday-Friday, 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dorothy Allen
DW
March 16, 2004

ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600